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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/551,198 | 09/27/2005 | Paul Raymond Smith | 739-71456-01 | 4067 |
| 24197 7590 12/08/2008 KLARQUIST SPARKMAN, LLP 121 SW SALMON STREET SUITE 1600 PORTLAND, OR 97204 | | | EXAMINER AFZALI, SARANG | |
| | | | ART UNIT 3726 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/551,198 | Applicant(s) SMITH, PAUL RAYMOND | |
| | Examiner SARANG AFZALI | Art Unit 3726 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>20050927</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 6, 8 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Olchewski et al. (US 4,278,307).

As applied to claim 1, Olchewski et al. teach a method of swaging a bearing comprising a ball (3, Fig. 1) and a bearing housing (1, Fig. 1), the method comprising the Steps of :

providing a ball and a bearing housing to be swaged around the ball (Fig. 1);

creating a temperature differential between the temperature of the housing and the temperature of the ball, the ball being at a lower temperature than the housing such that the relative size of the ball with respect to the housing decreases (col. 3, lines 26-31);

inserting the ball in the housing (Fig. 1);

swaging the housing around the ball (Fig. 1), the ball being cooler than the housing during the swaging process;

allowing the ball and housing to return to ambient temperature such that the relative size of the ball with respect to the housing increases.

It is inherent that the housing subjected to heating results in a temperature differential between the temperature of the housing and the temperature of the ball and that the heat softens and expands the housing material. As such, the temperature of the ball is considered cooler and the relative size of the ball is considered decreasing with respect to the temperature and size of the housing, as the housing size increases by heating. Furthermore, it is inherent that after any heating step is ceded and subsequent to any swaging step, the temperature of the ball/housing assembly would return to ambient temperature and with it the size of the housing decreases back to its original size which would result in the relative size of the ball being increased with respect to the size of the housing.

Note that the recitation "a spherical bearing" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

As applied to claim 6, Olchewski et al. teach the invention cited wherein the temperature differential is caused by heating the housing (col. 3, lines 26-31).

As applied to claims 8 & 20, Olchewski et al. teach the invention cited including that the swaging act (col. 3, lines 26-31) includes a conventional swaging process wherein a die (tool) is used to swage (deform) the housing (elements 5, 10, 15 & 20, Figs. 1, 2, 3 & 5) into a taper shaped swaged elements (6, 10', 15 & 21, Figs. 1a, 2a, 3a & 5a).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 11 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olchewski et al. in view of Board Jr. (US 2,995,813).

As applied to claim 2, Olchewski et al. teach the invention cited including that the housing is made from a plastic material (col. 1, lines 58-59) but fails to disclose the material for the ball and that the two materials being different from one another.

It would have been obvious to one of ordinary skill in the art, at the time of invention, to have used different materials for the ball and housing in the assembly of Olchewski et al., since the housing and ball were going to be heated in order to soften the plastic housing and as such the rolling element (ball) would have needed to be from a different material (i.e. a conventional metallic) in order not to be affected by the heating step that may result in a softening and possible damage to the ball.

Furthermore, Board Jr. teaches that it is well-known in the art to use metallic ball with a finished, polished spherical surface in a bearing assembly (col. 3, lines 28-31)

Therefore, it would have further been obvious to one of ordinary skill in the art, at the time of invention, to have utilized a bearing ball made of metal in the bearing assembly of Olchewski et al., as taught by Board Jr. considering the well-known durability and fatigue strength of a metallic ball.

As applied to claim 11, Olchewski et al./Board Jr. teach the invention cited. Olchewski et al. further teach a method wherein the temperature differential is caused by heating the housing (col. 3, lines 26-31).

As applied to claim 18, Olchewski et al./Board Jr. teach the invention cited. Olchewski et al. further teach a method wherein the swaging act (col. 3, lines 26-31) includes a conventional swaging process wherein a die (tool) is used to swage (deform) the housing (elements 5, 10, 15 & 20, Figs. 1, 2, 3 & 5) into a taper shaped swaged elements (6, 10', 15 & 21, Figs. 1a, 2a, 3a & 5a).

5. Claims 3, 7, 12, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olchewski et al. in view of Kawamura (US 5,421,088).

As applied to claims 3, 7 & 12, Olchewski et al. teach the invention cited wherein the temperature differential is caused by heating the housing but do not explicitly teach that the temperature differential also includes cooling the ball.

However, Kawamura teaches a method for assembling a bearing wherein the housing is heated and the ball is cooled prior to being assembled together (col. 5, lines 12-17).

It would have been obvious to one of ordinary skill in the art, at the time of invention, to have employed the cooling of the ball along with the heating of the housing of Olchewski et al., as taught by Kawamura, in order to provide an effective means of creating a temperature differential between the bearing's housing and the balls effecting a smoother and more efficient assembly.

As applied to claims 19 & 21, Olchewski et al./Kawamura teach the invention cited. Olchewski et al. further teach a method wherein the swaging act (col. 3, lines 26-31) includes a conventional swaging process wherein a die (tool) is used to swage (deform) the housing (elements 5, 10, 15 & 20, Figs. 1, 2, 3 & 5) into a taper shaped swaged elements (6, 10', 15 & 21, Figs. 1a, 2a, 3a & 5a).

6. Claims 4, 5 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olchewski et al. in view of Kawamura, as applied to claim 3 above, and further in view of Hill (US 5,150,636).

As applied to claims 4 & 5, Olchewski et al./Kawamura teach the invention cited in claim 3 wherein the temperature differential is created by cooling the ball but do not explicitly teach that the ball is cooled to below 0°C using liquid nitrogen.

However, Hill teaches a shrink fit method for assembling two members wherein liquid nitrogen is used to cool down one member to - 300°F (equal to -184° which is below the claimed 0°C) in order to produce a shrinkage of the member followed by inserting it into a recess of the second member (col. 3, lines 11-24).

It would have been obvious to one of ordinary skill in the art, at the time of invention, to have employed the liquid nitrogen as a cooling means to cool down the bearing balls of Olchewski et al./Kawamura , as taught by Hill, in order to provide an effective means of creating a temperature differential between the bearing's housing and the balls which would result in a more efficient and smoother assembly without subjecting the parts to any undesired mechanical forces.

As applied to claims 13 & 14, Olchewski et al./Kawamura as modified by Hill teach the invention cited. Olchewski et al. further teaches that the temperature differential is caused by heating the housing (col. 3, lines 26-31).

7. Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olchewski et al. in view of Board Jr. as applied to claim 2 above, and further in view of Kawamura.

As applied to claims 10 & 15, Olchewski et al./Board Jr. teach the invention cited wherein the temperature differential is caused by heating the housing but does not explicitly teach that the temperature differential also includes cooling the ball.

However, Kawamura teaches a method for assembling a bearing wherein the housing is heated and the ball is cooled prior to being assembled together (col. 5, lines 12-17).

It would have been obvious to one of ordinary skill in the art, at the time of invention, to have employed the cooling of the ball along with the heating of the housing of Olchewski et al./Board Jr., as taught by Kawamura, in order to provide an effective means of creating a temperature differential between the bearing's housing and the balls effecting a smoother and more efficient assembly.

8. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olchewski et al. in view of Board Jr. and Kawamura as applied to claim 15 above, and further in view of Hill.

As applied to claims 16 & 17, Olchewski et al./Board Jr./Kawamura teach the invention cited in claim 15 wherein the temperature differential is created by heating the housing and cooling the ball but do not explicitly teach that the ball is cooled to below 0°C using liquid nitrogen.

However, Hill teaches a shrink fit method for assembling two members wherein liquid nitrogen is used to cool down one member to - 300°F (equal to -184°C which is below the claimed 0°C) in order to produce a shrinkage of the member followed by inserting it into a recess of the second member (col. 3, lines 11-24).

It would have been obvious to one of ordinary skill in the art, at the time of invention, to have employed the liquid nitrogen as a cooling means to cool down the

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bearing balls of Olchewski et al./Board Jr./Kawamura , as taught by Hill, in order to provide an effective means of creating a temperature differential between the bearing's housing and the balls which would result in a more efficient and smoother assembly without subjecting the parts to any undesired mechanical forces.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARANG AFZALI whose telephone number is (571)272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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Examiner, Art Unit 3726
11/23/2008

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